REMARKS

Claims 1-15 were pending in this Application at the time of the office action of March 20, 2006. By the office action of March 20, 2006, the Examiner has rejected Claims 1-15 on various grounds discussed below. The Applicants respectfully traverse these rejections. Reconsideration is requested.

By the present amendment, claims 1, 3, 7 and 15 have been amended. Claim 2 has been cancelled and its elements have been incorporated into claim 1.

Claim Rejections - 35 U.S.C. §103

(4) Claims 1-3, 7, 8 and 12-15 were rejected under 35 U.S.C. §103(a) as being unpatentable over Rasmussen, US Patent No. 6,640,334 in view of Synnestvedt, et al., US Patent No. 6,598,057 in further view of San Martin et al., US Patent Publication No. 20020087668.

(5) As to claim 1, the Examiner asserts that Rasmussen discloses a method for downloading a configuration file in a customer premises data communications device including receiving a file and designating the file as the current binary file for the hub. But, as discussed in previous office actions, responses and an interview, the Examiner notes that Rasmussen does not disclose operating a device with a newly downloaded binary file to verify proper operation of the binary file.

(6) The Examiner asserts that San Martin: discloses operating a device with a binary file and verifying proper operation of the binary file [0002, 0003, abstract]; and if the device fails to operate properly with the new software, a backup is utilized such that the

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device is not effected by the bad software. The Examiner asserts that San Martin provides a benefit of insuring that new software runs properly with the device and it would therefore have been obvious to modify Rasmussen with San Martin's verification process.

(8) As to claim 2, which has now been incorporated into claim 1, the Examiner asserts that Rasmussen further teaches: loading the binary file into flash memory [abstract]; storing a trial run message identifying the binary file in volatile memory [col. 10, line 66 to col. 11, line 7, and col. 12, lines 9-18, "Active Page Flag"]; rebooting the device with the binary file [col. 10, line 66, to col. 11, line 7].

The Applicants disagree with the Examiner's readings of the references, especially as they would apply to amended claim 1.

San Martin differs from Rasmussen and the present invention in not having two nonvolatile memory locations for storing both a current (active) and previous (inactive) copy of operating software. San Martin teaches that the device being upgraded has only one copy of the software. As part of the upgrading process, San Martin teaches that a backup copy of the previous software should be made so that it can be reinstalled (in the one memory location) in the event that the new upgraded software fails to operate properly.

Since the device of San Martin does not have two memory locations for the software, it has no need to designate one as the current file for the device and one as inactive. San Martin does not teach or suggest designating a file as the current file for operating the device.

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Rasmussen does not teach storing a trial run message. Rasmussen does not teach storing such a message in volatile memory. The Active Page Flag 36 is what designates which memory partition contains the current operating software. The Active Page Flag 36 is stored in flash memory partition 34 as shown in Fig. 3 of Rasmussen. Flash memory is not volatile memory.

Active Page Flag 36 of Rasmussen is the same as the flag or locked image discussed in paragraphs 0048 and 0049 of the present specification which are stored in non-volatile memory. The trial run message of the present invention is stored in volatile memory and causes the system to ignore the current file flag and reboot with the software that is indicated not to be the current file as far as the stored flag is concerned.

No combination of the cited references can teach the method of claim 1 including storing the trial run message in volatile memory that causes the system to operate with software not then designated as the current software, verifying that the software operates properly, and, if proper operating is verified, then designating the software as the current software.

In view of these substantial differences from the cited references, the Applicants submit that claim 1 is clearly patentable over the references. Since claims 3-6 depend from claim 1, Applicants submit that these claims are also patentable over the cited references.

(10) As to claim 7, the Examiner asserts that Rasmussen teaches various elements of claim 7, but fails to teach operating the device with the binary file and verifying proper operation of the binary file.

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(11) The Examiner asserts that San Martin: discloses operating a device with a binary file and verifying proper operation of the binary file [0002, 0003, abstract]; and if the device fails to operate properly with the new software, a backup is utilized such that the device is not effected by the bad software. The Examiner asserts that San Martin provides a benefit of insuring that new software runs properly with the device and it would therefore have been obvious to modify Rasmussen with San Martin's verification process.

As discussed previously, Rasmussen teaches only verifying that new software has been properly downloaded into the inactive memory partition, by a checksum, and then designating it as the active or current software. If the device is then rebooted and the software fails to operate, there is no mechanism for recovering.

The device of San Martin does not have two memory partitions. New software must be loaded into the one location for operating software. For recovery purposes, San Martin teaches making a backup copy of the current software before loading the new software. San Martin does not have a flag or other indicator of which software is the current software in the device, because there is only one storage location, i.e. there is no need to designate which of two locations is current. If the new software fails to operate properly, San Martin does not teach changing a flag, but instead must reload the software from backup into the one memory location that stores the operating software.

These two systems are so different that one skilled in the art would see no reason to combine them. No combination would result in the invention of claim 7. As a result, the Applicants submit that claim 7 is patentable over the cited references. Since

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claims 8-11 depend from claim 7, Applicants submit that these claims are also patentable over the references.

(13) As to claim 8, the Examiner asserts that the references teach the hub of claim 7, further comprising: a volatile memory having a memory location designated for storing a trial run message [citing Rasmussen, col. 5, lines 21-23 and col. 6, line 61 to col. 7 line 25, "storing run time data" and RAM is well known to be volatile memory]; means for, upon receipt of a new binary file, storing in the volatile memory a trial run message identifying the nonvolatile memory section in which said new binary file is stored [col. 6, line 61, to col. 7, line 5]; and means for, upon rebooting, checking the volatile memory for the presence of a trial run message, and if present, operating the hub with the new binary file [col. 6, line 61 to col. 7, line 5, where the presence of the flag being set to "0" or "1" corresponds to a trial run message].

The Applicants disagree with the Examiner's reading of Rasmussen.

It is true that Rasmussen teaches use of RAM, and teaches storing of run time data in RAM. It is also true that RAM is volatile memory.

However, Rasmussen does not teach or suggest storing a trial run message in RAM or other volatile memory. Rasmussen's Active Page Flag 36 is what designates which flash memory partition contains the current operating software. The Active Page Flag 36 is stored in flash memory partition 34 as shown in Fig. 3 of Rasmussen. Flash memory is not volatile memory.

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Active Page Flag 36 of Rasmussen is the same as the flag or locked image discussed in paragraphs 0048 and 0049 of the present specification which are stored in non-volatile memory. The trial run message of the present invention is stored in volatile memory and causes the system to ignore the current file flag and reboot with the software that is indicated not to be the current file as far as the stored flag is concerned.

If these teachings of Rasmussen were used in the present invention, the new binary file would be flagged as the current file as soon as it was properly downloaded. Upon reboot the standard process of looking at the flag to identify the current active partition would be used and the new software would be used to operate the device. If the software failed to operate properly, it would still be designated as the current software and would be used upon subsequent reboots and would still not work.

In view of these substantial differences, the Applicants submit that claim 8 is clearly patentable over the cited references.

(14) Claims 12-15 were rejected for the same reasons set forth for rejecting claims 7 and 8.

As noted above, it is true that devices relevant to the present invention normally have volatile memory, usually RAM. It is true that run time data is stored in RAM. However, one skilled in the art knows that the definition of volatile memory is that it must remain powered up to maintain its stored data. That is, upon reboot of a device, all data in RAM is assumed lost or corrupted and is replaced with files from non-volatile memory, for example flash memory or disk memory.

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None of the references teaches storing a message in volatile memory for use after rebooting. Only the present Applicants have discovered and teach that a message stored in RAM, in this case a trial run message, will normally survive a device activated reboot or restart process and can be used to override the active page flag. Only the present Applicants have found that this can be used as a fail safe process in downloading new operating software and testing the new software.

As discussed above, none of the references alone or in combination teaches use of a trial run message. As taught in the present specification, a trial run message instructs the operating system on reboot to ignore the conventional active page flag and start the system with software designated as inactive.

The Examiner has equated the conventional active page flag 36 of Rasmussen with the trial run message of the present disclosure. However, Rasmussen teaches that the active page flag 36 is stored in flash memory that is not volatile memory. The Active Page Flag 36 of Rasmussen is equivalent to the active page flag or locked image indicator of the present application that is also stored in non-volatile memory, but is different from the trial run message.

The teachings of the present Applicants is actually contrary to the teachings of the prior art and are not only novel, but clearly unobvious. Therefore, Applicants submit that claims 12-15 are clearly patentable over the cited references.

(23) Claims 1-3, 7, 8 and 12-15 were rejected under 35 U.S.C. §103(a) as being unpatentable over Rasmussen, US Patent No. 6,640,334 in view of Synnestvedt, et al. US Patent No. 6,598,057 in further view of Aija et al., US Patent No. 6,928,579.

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(24) As to claim 1, the Examiner asserts that Rasmussen discloses a method for downloading a configuration file in a customer premises data communications device including receiving a file and designating the file as the current binary file for the hub. But, as discussed in previous office actions, responses and an interview, the Examiner notes that Rasmussen does not disclose operating a device with a newly downloaded binary file to verify proper operation of the binary file.

(25) However, the Examiner asserts:

that Aija is directed towards updating firmware of network devices and utilizing multiple partitions to recover from booting or run-time errors [abstract, col. 1, lines 6-9];

that Aija discloses operating the device with the binary file and verifying proper operation of the binary file [col. 1, lines 39-48, col. 4, lines 1-9, where Aija discloses running the device with the new software download and if the device fails to properly load with the new software, the device reverts back to the backup copy, otherwise the device marks it as the "current" file];

that if the network device fails to operate properly with the new software, a backup is utilized such that the network device is not affected by bad software.

The Examiner asserts that Aija provides a benefit of insuring that new software runs properly with the device and it would therefore have been obvious to modify Rasmussen with Aija's testing means.

(27) The Examiner has rejected claim 2, which has been incorporated into claim 1, for the same reasons as set forth above.

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The Applicants disagree with the Examiner's readings of the references, especially as they would apply to amended claim 1.

As discussed above, Rasmussen teaches downloading a new version of operating code, checking to see if it was properly downloaded, and if so changing the active page flag to designate the new software as the current software. If the new software fails to operate properly upon reboot, Rasmussen does not teach a way to recover.

Aija also has dual partitions and provides a solution to the problem with Rasmussen. However, the combination of the references does not teach the present invention.

As noted by the Examiner, Aija provides multiple memory partitions for operating software including one designated as current and one designated as backup. In the abstract and col. 1, lines 6-9, cited by the Examiner, Aija generally discloses that in event of a boot or runtime error, the system will reboot with software stored in the backup partition. This necessarily means that the system will normally reboot with software in the partition flagged as the current partition.

In col. 1, lines 39-48, cited by the Examiner, Aija teaches as prior art, i.e. background, that it is known to load new software into the backup partition, to then swap the flags indicating which partition is current and then pass control to the backup partition in the event the primary partition fails to LOAD properly, not to operate properly. This description discussed only loading failures, not operating failures. It also indicates that the new software was designated as the current software, even before a loading error could be detected. It does not teach again swapping the flags so that the

backup partition again becomes the current partition. While this would overcome problems of Rasmussen, it does not anticipate the process of the present invention where the flag is not swapped until after the new software is tested and shown to be operating properly (thereby avoiding the need to swap flags again and being a fail safe process).

In col. 4, lines 1-9 cited by the Examiner, Aija teaches the conventional use of two partitions one designated as current and one as backup. On reboot the software in the current partition is used. This section does not address what happens in event of failure to operate.

The actual downloading process of Aija is described at col. 5, lines 7-30. New software is loaded into the backup partition, the flags are swapped and the system is rebooted with the new software which is then designated the current software.

The failure recovery process of Aija is described at col. 5, line 51 to col. 6, line 4. If a failure is detected, the system reboots with the backup software (which would be the previous software operating before the new software was received) and then the flags are again swapped to again designate the old software as the current software.

No combination of the references teaches the invention of claim 1. Claim 1 covers downloading and testing the new software for proper operation, before changing the flags indicating which memory partition is the current partition. Rebooting and testing occur before the flags are swapped. This results in a fail safe system. That is, if any normal reboot occurs before the verification step, the system will restart with the old software because it is still flagged as the current software. The system of Aija swaps the flags upon loading of the new software and must reswap if the software does not

operate properly. Aija does not address what happens if the software failure and system lockup is so complete that it is not able to reboot with the backup and reswap the flags.

In view of these substantial differences from the cited references, the Applicants submit that claim 1 is clearly patentable over the references. Since claims 3-6 depend from claim 1, Applicants submit that these claims are also patentable over the cited references.

(27) The Examiner has rejected claims 7, 8 and 12 for the same reasons as set forth above.

With reference to claim 7, the above remarks show that the cited references do not teach testing a new software load and verifying proper operation before designating the new software as the current operating software. Not only does the invention of claim 7 operate differently, but it provides the improvement of fail safe operation.

In view of the substantial differences, Applicants submit that claim 7 and its dependent claims 8-11 are patentable over the cited references.

With reference to claim 8, the above remarks show that no reference teaches or suggests use of volatile memory to store a trial run message and upon rebooting, checking the volatile memory for such a message and if present, operating the device with the new software.

In view of the substantial differences, the Applicants submit that claim 8 is clearly patentable over the cited references.

With reference to claims 12-15, the above remarks show that none of the references teaches or suggests use of volatile memory to store a message across a reboot process. This teaching is contrary to the understanding of those skilled in the art that volatile memory cannot store data across a reboot which normally involves removing power from the volatile memory. Only the present Applicants have taught this process and shown that it provides a fail-safe way to test new software.

In view of this surprising teaching of the present invention, and the substantial differences and advantages, the Applicants submit that claims 12-15 are clearly patentable over the cited references.

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CONCLUSION

The Commissioner is hereby authorized to charge payment of any further fees associated with any of the foregoing papers submitted herewith, or to credit any overpayment thereof, to Deposit Account No. 21-0765, Sprint.

Applicants respectfully submit that the present application as amended is in condition for allowance. If the Examiner has any questions or comments or otherwise feels it would be helpful in expediting the application, he is encouraged to telephone the undersigned at (972) 731-2288.

Respectfully submitted,

CONLEY ROSE, P.C.

Date: 5-23-06

Albert C. Metrailer
Reg. No. 27,145

ATTORNEY FOR APPLICANTS

5700 Granite Parkway, Suite 330
Plano, Texas 75024
Telephone: (972) 731-2288
Facsimile: (972) 731-2289

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